From:	Appel, Patrick
To:	Coltrain, Katrina
Cc:	todd.downham@deq.ok.gov
Subject:	RE: Wilcox Oil Treatability Study Work Plan Revision 00
Date:	Monday, March 4, 2019 12:41:36 PM
Attachments:	image001.png Wilcox Oil Treatability Study Work Plan Revision 0.1.pdf

Hi Katrina- please see attached Revision 0.1 which incorporates your comments. Hopefully the waste classification meets our needs. I primarily used your explanation with a modified flow chart.
Let me know if you have any questions.
Thanks
Pat

From: Coltrain, Katrina <coltrain.katrina@epa.gov>
Sent: Tuesday, February 19, 2019 11:15 AM
To: Appel, Patrick <pappel@eaest.com>
Cc: todd.downham@deq.ok.gov
Subject: RE: Wilcox Oil Treatability Study Work Plan Revision 00

Let's try this revision. My attempt is to clarify the process being used to show compliance with the regulations. Edits will most likely be needed for flow/spelling/etc.
Pat, please make sure that the phrasing and wording is consistent with that used through the document. For example, I use 'lead sweetening area waste' where the document may have used a slightly different term. Also, please fact check the regulations cited.
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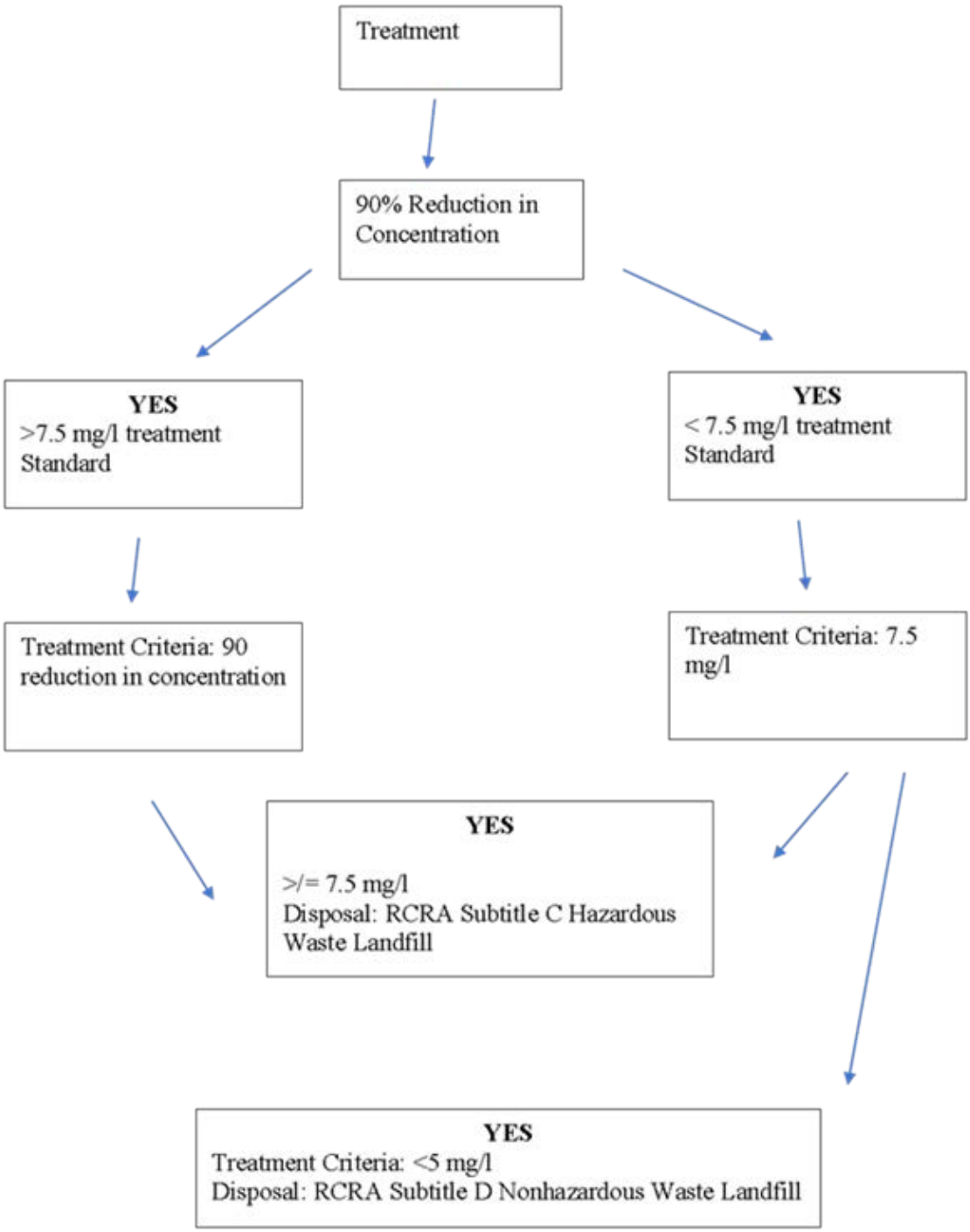
Contaminated soil must meet treatment standards prior to land disposal if it is hazardous (i.e., contains a listed hazardous waste or is a characteristic hazardous waste). Although, the lead sweetening area waste is not a listed hazardous waste, it is a characteristic hazardous waste because it exceeds the leaching criteria of 5 milligrams/kilograms (mg/kg) for lead (261.24). In order to dispose of the waste in an offsite landfill, it must be treated to meet the disposal treatment standards [268.49(a)] for lead and any other underlying hazardous constituents [268.49(d)]. Based on data collected, no other underlying hazardous constituents are identified for treatment; therefore, only lead will need to be treated to meet disposal treatment standards.
The regulations provide for alternative land disposal restriction treatment standards (268.49) that can be used to address soil contamination prior to disposal. For metals (i.e., lead), the treatment must achieve 90% reduction in constituent concentrations as measured by leachate data collected from the treated material or 90% reduction in total constituent concentration when a metals removal technology is used. The technology being used to treat the lead contamination is stabilization/solidification; therefore, the 90% reduction in constituent concentrations as measured by leachate data collected from the treated material criterion will be used.
The regulations further states that if treatment results in a 90% reduction constituent concentrations less than 10 times the treatment standard, then treatment need only meet the concentration that is 10 times the treatment standard (268.49(c)(1)(C). For example, the treatment standard for lead is 0.75 mg/l in the leachate. The concentration that is 10 times this treatment standard is 7.5 mg/l lead in the leachate. If after treatment, the concentration is reduced by 90% and remains *above* 7.5 mg/l, treatment met a 90% reduction in concentration and the material can be disposed. If after treatment, the concentration is reduced by 90% and is *below* 7.5 mg/l, treatment exceeds the standard and only needs to meet 7.5 mg/l.
As noted in the previous paragraph, if the leachate exceeds 5 mg/l lead, then the material is considered a characteristic waste. Because 7.5 mg/l is above the characteristic criterion of 5 mg/l, the soil will need to be disposed at a RCRA subtitle C hazardous waste landfill even though it has been treated. Treating the waste to 5mg/l or less, will meet land disposal restrictions and allow for disposal at a RCRA subtitle D Nonhazardous landfill.

Maybe a graphic or table

Alternative Treatment Standard For Soil

	Treatment Standard	10 times the Treatment Standard	90% Reduction Results	Standard to be met for Disposal
Sample A	0.75 mg/l	7.5 mg/l	10 mg/l	90% reduction
Sample B	0.75 mg/l	7.5mg/l	4 mg/l	7.5 mg/l



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From: Appel, Patrick <pappel@eaest.com>
Sent: Friday, December 28, 2018 10:29 AM
To: Coltrain, Katrina <coltrain.katrina@epa.gov>
Cc: todd.downham@deq.ok.gov
Subject: RE: Wilcox Oil Treatability Study Work Plan Revision 00

Hi Katrina – this got buried in my email since I was in the field last week. I have updated the WP and would like to propose the following language to be included to justify the TCLP disposal criteria. Please let me know if you agree or have any questions or concerns.

Following review of the ARARs and applicable regulations the disposal criteria was determined using the following logic:

40 CFR § 268.49 - Alternative LDR treatment standards for contaminated soil

There are two alternative soil treatment standards as follows per 40 CFR 268.49:

1. *Reduce the contaminant concentration by at least 90% of the initial concentration through treatment; and*
2. *Contaminant concentration must not exceed 10 times the Universal Treatment Standards (UTS), before sending to a Resource Conservation Recovery Act Subtitle C or D permitted disposal facility. For lead contaminated soil at the site this approach requires treating the soil to a concentration ten times higher than the Universal Treatment Standard (UTS) of .75 mg/L, or 10 x 0.75 = 7.5 mg/L using TCLP.*

40 CFR § 261.24 - Toxicity characteristic

The Source Control ROD identifies the waste in the lead additive area as a characteristic waste under 40 CFR § 261.24. Lead contaminated soil with a lead concentration greater than 5 mg/L is defined as hazardous waste and must be disposed of in a RCRA Subtitle C permitted landfill. Lead contaminated soil with a lead concentration equal to or below 5 mg/L is considered non-hazardous waste and can be disposed of in a RCRA Subtitle D permitted landfill.

Alternative 2 of the alternative LDR treatment standards for contaminated soil controls for lead at the Wilcox since it provides the lower of the two 40 CFR § 268.49 alternatives. However, the alternate 2 standard, 7.5 mg/L would require that the waste be disposed of as hazardous waste since it exceeds the toxicity regulatory level for hazardous waste of 5 mg/L. Soil treated to a concentration of lead below 5 mg/L can be disposed of as non-hazardous waste at a Subtitle D facility reducing the disposal cost significantly.

From: Coltrain, Katrina <coltrain.katrina@epa.gov>
Sent: Tuesday, December 04, 2018 8:38 AM
To: Appel, Patrick <pappel@eaest.com>
Cc: todd.downham@deq.ok.gov
Subject: RE: Wilcox Oil Treatability Study Work Plan Revision 00

Pat, just a few comments.

Section 2, Step 1, RAO-3: Please revise this to mirror the Source Control ROD by moving the last few sentences to a new paragraph. The treatment is not to meet the RAO, but to meet disposal criteria. Suggested wording provided below.

> Currently, there is insufficient data to determine whether chemical S/S can treat the lead-contaminated material to meet the non-hazardous disposal criteria. There is also insufficient data to allow for full-scale implementation of chemical S/S, should the technology be selected as part of the site remedy.

Section 3.1, list 4.a: revise '(four from each corner…)' to '(one from each corner..)'

Section 4: insert characteristic and material: '….from the LAA where soils were previously

identified as characteristic hazardous material due to elevated concentrations…..'
The text describes the treatment of the material to meet the TCLP disposal criteria of 5 mg/L. Please verify that this is the correct and only criteria that needs to be met by reviewing the ARARs listed in the Source control ROD.

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From: Appel, Patrick <pappel@eaest.com>
Sent: Friday, November 16, 2018 2:01 PM
To: Coltrain, Katrina <coltrain.katrina@epa.gov>
Cc: todd.downham@deq.ok.gov
Subject: Wilcox Oil Treatability Study Work Plan Revision 00

Hi Katrina – attached is Revision 00 of the Treatability Study Work Plan for Wilcox Oil for your review/comment. I've also copied Todd on this email as well.
Let me know if you have any questions.
Thank you
Pat